

AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions, and listings, of claims in the application:

LISTING OF CLAIMS:

1-14. (cancelled)

15. (currently amended) Ceramic element (1) with at least one substantially homogenous ceramic layer (2),

- the ceramic layer (2) having a plurality of partial ceramic layers (3) arranged one on top of the other,

- at least one electrode layer (8) being arranged on at least one surface section (7) of the ceramic layer (2),

- at least one further electrode layer (10) being arranged on a further surface section (9) of the ceramic layer (2) such that the electrode layers (8, 10) are arranged opposite each other and the ceramic layer (2) is arranged between the electrode layers (8, 10), characterized in that

- at least one of the electrode layers (8, 10) is arranged between the ceramic layer (2) and at least one further ceramic layer (13) and is buried by said at least one further ceramic layer (13), said further ceramic layer being a diffusion barrier layer.

16. (previously presented) Ceramic element according to Claim 15, wherein the partial ceramic layers (3) have a ceramic material (6) selected from the group of green ceramics and/or sintered ceramics.

17. (previously presented) Ceramic element according to Claim 15, wherein at least one of the partial ceramic layers (3) has a partial layer thickness (4) selected from the range 5 μm to 250 μm inclusive.

18. (previously presented) Ceramic element according to Claim 15, wherein the ceramic layer (2) has an overall layer thickness (5) selected from the range 10 μm to 5mm inclusive.

19. (previously presented) Ceramic element according to Claim 16, wherein the ceramic material (6) comprises a piezo-ceramic.

20. (currently amended) Ceramic element according to Claim 19, wherein the piezo-ceramic (6) is a lead zirconate titanate and the diffusion barrier is for diffusing volatile components of the lead zirconate titanate.

21. (previously presented) Ceramic element according to Claim 15, wherein the element (1) is selected from the group of

piezo-electric transformers (11) or piezo-electric bending transducers (12).

22. (previously presented) Method for producing a ceramic element according to Claim 15, which comprises the following method steps:

a) arranging the homogenous partial ceramic layers one on top of the other to form a stack; and

b) compacting the stack, the ceramic element being formed with the ceramic layer.

23. (previously presented) Method according to Claim 22, wherein ceramic green films with a green ceramic are used as the homogenous partial ceramic layers.

24. (previously presented) Method according to Claim 22, wherein the step of compacting the stack includes laminating.

25. (previously presented) Method according to Claim 22, wherein the step of compacting the stack includes heat treatment of the stack.

26. (currently amended) Ceramic element (1) with at least one substantially homogenous ceramic layer (2),

- the ceramic layer (2) having a plurality of partial ceramic layers (3) arranged one on top of the other,

- at least one electrode layer (8) being arranged on at least one surface section (7) of the ceramic layer (2),

- at least one further electrode layer (10) being arranged on a further surface section (9) of the ceramic layer (2) such that the electrode layers (8, 10) are arranged opposite each other and the ceramic layer (2) is arranged between the electrode layers (8, 10), characterized in that

- at least one of the electrode layers (8, 10) is arranged between the ceramic layer (2) and at least one further ceramic layer (13), said at least one further ceramic layer (13) having an exposed surface opposite its adjacent said electrode layer (8, 10),

the further ceramic layer being a diffusion barrier layer for volatile components of lead zirconate titanate, and

the further ceramic layer having a thickness less than a thickness of any of the partial ceramic layers.

27. (cancelled)

28. (new) A ceramic element (1), comprising:

at least one substantially homogenous ceramic layer (2) with an overall layer thickness selected from a range 10 μ m to 5 mm inclusive and in a form of a compacted stack of a plurality of

homogenous partial ceramic layers arranged one partial ceramic layer on top of another partial ceramic layer,

the partial ceramic layers comprising sintered ceramic,
at least one of the partial ceramic layers has a partial layer thickness selected from the range 5 μ m to 250 μ m inclusive;

a first electrode layer (8) arranged on an uppermost surface of the homogenous ceramic layer; and

a diffusion barrier for volatile components of lead zirconate titanate, the diffusion barrier comprised of

i) a second electrode layer (10) arranged on a lowermost surface of the homogenous ceramic layer, and

ii) a further ceramic layer (13) arranged so that the second electrode layer (10) is intermediate the further ceramic layer (13) and the lowermost surface of the homogenous ceramic layer,

the further ceramic layer having a thickness less than a thickness of any of the partial ceramic layers.

29. (new) The ceramic element of claim 28, wherein the partial layers of the plurality of homogenous partial ceramic layers are of different partial layer thicknesses.

30. (new) The ceramic element of claim 28, wherein each partial layer of the plurality of homogenous partial ceramic layers are comprises a single phase of a single ceramic material.

31. (new) The ceramic element of claim 28, wherein,
the ceramic element is a piezo-electric bending transducer,

the partial layers of the plurality of homogenous partial ceramic layers number five and are of lead zirconate titanate with a partial layer thickness of around 20 μm ,

the first and second electrode layers (8, 10) extend to an edge of an adjacent surface of the homogenous ceramic layer covering a lateral surface section of the homogenous ceramic layer.

32. (new) The ceramic element of claim 31, further comprising:

a still further ceramic layer (13) arranged so that the first electrode layer (8) is intermediate the still further ceramic layer (13) and the uppermost surface of the homogenous ceramic layer,

the still further ceramic layer having a thickness less than the thickness of any of the partial ceramic layers.

33. (new) The ceramic element of claim 32, wherein,
the further ceramic layer and the still further ceramic
layer each have a thickness around 10 μm .

34. (new) The ceramic element of claim 32, further
comprising:

an electrical contact (15) extending through the still
further ceramic layer.

35. (new) The ceramic element of claim 32, further
comprising:

a pair of electrical contacts located at a freely
accessible free contact area (16) of the first and second
electrode layers not covered by the further ceramic layer and the
still further ceramic layer.